

WHAT IS CLAIMED IS:

1. An internal combustion engine comprising:

a cylinder in which a piston is reciprocally fitted;

a cylinder head formed with an intake port having a first port and a second port including, respectively, a first inlet slot and a second inlet slot opening into a combustion chamber;

a valve mechanism for opening and closing a first intake valve and a second intake valve for opening and closing the first port and the second port, respectively; and

intake air control means for generating a swirl in the combustion chamber by intake air flowing from the first port;

wherein a straight line orthogonal to a first plane, which is a plane including the first inlet slot, is a perpendicular line, that a plane including a cylinder axis and extending in parallel with the rotational centerline of a camshaft provided with a valve motion cam for opening and closing the first intake valve is a first reference plane, that a plane including the cylinder axis and extending orthogonally to the rotational centerline is a second reference plane, and that a plane extending in parallel with the first reference plan is a first orthogonal plane, the line of intersection between the first plane and the first orthogonal plane inclines upwardly as it approaches from the position near an outer periphery of the combustion chamber toward the second reference plane at the first inlet slot, and the first port includes a first port section having a passage shape which extends

substantially along the perpendicular line from the first inlet slot towards the upstream by a predetermined length of the passage in a plan view.

2. The internal combustion engine according to claim 1, wherein the first port that includes the first port section extends a length from the first inlet slot towards the upstream to a position radially outward from the combustion chamber in a plan view.

3. The internal combustion engine according to claim 2, wherein the first port section has a passage shape approaching gradually to the second port as it approaches to the first inlet slot.

4. The internal combustion engine according to claim 3, wherein at the first inlet slot a main stream of intake air is directed toward a position shifted toward the outer periphery of the combustion chamber with respect to where the first inlet slot is located.

5. The internal combustion engine according to claim 1, and further including a valve halting mechanism operatively positioned relative to the second intake valve for switching transmission and non-transmission of a valve opening force from a second valve lifter to the second intake valve.

6. The internal combustion engine according to claim 5, and further including a drive mechanism for controlling the halting mechanism for selectively

halting the opening and closing operation of the second intake valve irrespective of a reciprocating motion of a second valve lifter in a specified operating range of the internal combustion engine.

7. The internal combustion engine according to claim 6, wherein the drive mechanism is operated to halt the opening and closing operation of the second intake valve in a low-speed operating range.

8. The internal combustion engine according to claim 6, wherein the drive mechanism is operated to halt the opening and closing operation of the second intake valve in a low-load operating range.

9. The internal combustion engine according to claim 5, wherein the valve halting mechanism includes a cylindrical pin holder slidably fitted in a second valve lifter with a slide pin slidably fitted in the pin holder and a return spring for urging the slide pin in a predetermined direction.

10. The internal combustion engine according to claim 9, and further including a stopper pin operatively positioned relative to said slide pin for preventing rotation of the slide pin.

11. An internal combustion engine comprising:

an internal combustion engine including a cylinder in which a piston is reciprocally fitted;

a cylinder head formed with an intake port having a first port and a second port including, respectively, a first inlet slot and a second inlet slot opening into a combustion chamber;

a valve mechanism for opening and closing a first intake valve and a second intake valve for opening and closing the first inlet slot and the second inlet slot, respectively, and for halting the second intake valve in a specified operating range;

wherein the first intake valve formed of a poppet valve is disposed so as to gradually approach a reference plane which includes a cylinder axis and extends orthogonally to the rotational centerline of a camshaft on which a valve motion cam for opening and closing the first intake valve is provided as the axis of a valve stem approaches from the side of the distal end of the valve stem to the side of the bevel portion of the first intake valve in plan view; and

wherein the first port includes a port section having a passage shape extending substantially along the axis of the valve stem in a plan view from the first inlet slot towards the upstream by a predetermined passage length.

12. The internal combustion engine according to claim 11, wherein the valve mechanism includes a valve halting mechanism operatively positioned relative to the second intake valve for switching transmission and non-transmission of a valve opening force from a second valve lifter to the second intake valve.

13. The internal combustion engine according to claim 12, and further including a drive mechanism for controlling the halting mechanism for selectively

halting the opening and closing operation of the second intake valve irrespective of a reciprocating motion of a second valve lifter in the specified operating range of the internal combustion engine.

14. The internal combustion engine according to claim 13, wherein the drive mechanism is operated to halt the opening and closing operation of the second intake valve in a low-speed operating range.

15. The internal combustion engine according to claim 13, wherein the drive mechanism is operated to halt the opening and closing operation of the second intake valve in a low-load operating range.

16. The internal combustion engine according to claim 12, wherein the valve halting mechanism includes a cylindrical pin holder slidably fitted in a second valve lifter with a slide pin slidably fitted in the pin holder and a return spring for urging the slide pin in a predetermined direction.

17. The internal combustion engine according to claim 16, and further including a stopper pin operatively positioned relative to said slide pin for preventing rotation of the slide pin.